Abstract Title Page

Title: Teacher characteristics influence responsiveness to a course and a consultancy focused on effective teacher-child interactions.

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Background / Context:

Previous research has identified certain teacher characteristics, such as levels of personal stress and depression, influence the participation in an intervention (e.g., Li Grining et al., 2010). However participation manifests itself in a variety of mechanisms within different intervention settings. Using data from the National Center for Research in Early Childhood Education, the current study explores teacher and classroom characteristics that influence involvement in a course and a consultancy aimed at improving teacher-child interactions in preschool classrooms. Participation in the intervention is defined not only by attendance, but also through observed engagement, teacher completion of course- or consultancy-related tasks, and teacher satisfaction. Given that both interventions have demonstrated positive changes in classroom quality (Hamre et al., 2011; Pianta, 2011) the data provide an excellent setting to explore teacher and classroom characteristics that may influence participation.

Berkel, Mauricio, Schoenfelder, and Sandler (2011) postulate that participant responsiveness is one factor that is key to understanding the effects of an intervention. The current study operationalizes responsiveness by measuring teacher attendance, completion of assignments, satisfaction, and engagement. In the secondary education literature school attendance is often associated with improved test scores (Gottfried, 2010). Further, students who complete homework assignments (Zelkowski, 2011) and have positive feelings toward their teacher (Pianta, 1999) also tend to do better academically than their peers. In classrooms, student engagement in often predicts later achievement and success (e.g., Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008). It is likely that these associations transfer to the intervention framework in that individuals who are more engaged, dedicated, and find the intervention program interesting, may participate more from the intervention.

The content in the course and consultancy was focused developing effective teacher-child interactions in the classrooms. Specifically, effective teachers are likely to (a) engage their students in intentional, instructional discussions, activities and conversations, (b) have sensitive, warm and secure interactions, (c) organize the classroom in such a way that is not rigid or regimented, and (d) provide responsive feedback to children that is designed to promote further engagement and understanding (Burchinal et al., 2000; Hamre & Pianta, 2007). Thus it is likely that teachers who hold more teacher-directed, authoritarian beliefs about children, feel high levels of anxiety or anger, less efficacious about their teaching, and whose classrooms demonstrate lower levels of effective teacher-child interactions may demonstrate fewer responsive behaviors within an intervention.

Purpose / Objective / Research Question / Focus of Study:

In the current study characteristics of the teacher and classroom that influence teacher responsiveness to the course or consultancy are explored. If classroom quality or characteristics of teachers, such as anxiety levels or efficacy in teaching prior to intervention participation are predictive of responsiveness, then future programs will be able to provide additional supports and resources for these individuals. Further, it may be that the influences of these characteristics differ depending on the intervention setting. For example, the course may provide a safe haven for teachers who are shy and nervous, while the consultancy, which is an intensive, one-on-one relationship, may increase teacher anxiety levels and limit participation. On the other hand, teachers who have more child-centered beliefs about development and classroom interactions may be more responsive to the course and consultancy.

Setting:

The NCRECE course and consultancy was offered in nine sites across the country: Charlotte, North Carolina; Chicago, Illinois, Columbus, Ohio; Dayton, Ohio; Hartford,

Connecticut; Memphis, Tennessee; New York City; Rhode Island; and Stockton, California. Participating teachers worked in a variety of early childhood programs including Head Start, preschool, and child care.

Population / Participants / Subjects:

Two hundred twenty-three teachers were randomized into the course, however only 167 teachers had at least partial data. Two hundred eight teachers were randomized into the consultancy, and 193 had at least some data and were included in analyses. Teachers were diverse in their educational attainment, experience, and in their racial/ethnic background (see Table 1 for descriptives). [Insert Table 1]

Intervention / Program / Practice:

The course entitled *Support of Language and Literacy Development in Preschool Classrooms through Effective Teacher-Child Interactions and Relationships*, was designed to increase teachers' knowledge about essential role that teacher-child interactions play in learning and to build specific skills for observing teacher-student interactions that contribute to language and literacy skills. The course was delivered in 14, 3-hour long sessions, through collaborations with local colleges and universities in each site. Instructors (n = 15) were provided with instructor manuals which included PowerPoint presentations, videos, and written assignments for each course section. Instructors attended a week-long training and were provided with ongoing implementation support by NCRECE course consultant. Instructors were trained to reliability on the CLASS, and on course content and implementation, and thus consistent delivery was promoted across course sections with a high degree of fidelity (LoCasale-Crouch et al., in press). Instructors were extensively trained on the materials and completed weekly assignment to ensure their understanding of the materials. Further, NCRECE course consultants provided ongoing support for instructors.

In the consultancy teachers were paired with a consultant. The consultancy focused on: a) establishing a non-judgmental and non-evaluative supportive relationship b) observing the video footage and identifying a teacher's behaviors with students and their effects; and, c) problem-solving to identify and implement alternative approaches as needed and receiving feedback on such attempts. Every two weeks over the school year, teachers videotaped their implementation of a language/literacy activity. The consultant reviewed and edited the video into a 1-2 minute segment(s) and provided feedback and questions designed to promote reflection. Specifically, the segment and prompt challenged the teacher to examine the specific interactions used to make the observed language and literacy instruction successful or those that hindered success. Once the teacher responded, the teacher and consultant had a video-conference and decided on an action plan for the next cycle.

Research Design:

The overall study employed a randomized control trial methodology. Teachers within each site were randomly assigned to receive the course or to be in a business as usual control group. The next year, teachers within each site were randomized to receive the course or a business as usual group. The current study is a non-randomized follow up analysis teacher and classroom characteristics that influenced engagement in the course or consultancy.

Data Collection and Analysis:

Teachers completed a questionnaire before the start of the intervention and submitted videotapes of classroom activities; the measures used in the current analyses are described below. Descriptives for the variables of interest are found in Table 2. [Insert Table 2]

Teacher anxiety and anger. Teachers completed a 10-item inventory designed to assess teachers' emotional state during the past week (Spielberger, 1988). The anxiety scale includes items such as "I feel tense" and the anger expression scale includes items such as "I was furious." Items were rated on a response scale from 0 (not at all) to 3 (very much). Internal consistency for the current study were .80 and .83.

Teacher's sense of self efficacy. Teachers completed a 12-item scale which assesses teachers' judgment of capabilities to bring about desired outcomes of student engagement and learning, even among students who may be difficult or unmotivated (α = .93; Tschannen-Moran & Hoy, 2001)

Teacher work-related stress. Teachers completed the Teacher Stress Inventory (Fimian & Fastenau, 1990), a16-item scale assessing how intensely teachers experience stress, including work-related stressors (e.g., There is little time to prepare for my lessons/responsibilities), professional investment (e.g., I lack opportunities for professional improvement), and discipline and motivation (e.g., I feel frustrated because of discipline problems in my classroom). A mean of the items was created to capture total work stress (α =.87).

Authoritarian beliefs about children. Before the intervention, teachers reported on their adult-centered beliefs about children by discriminating between "traditional" or relatively adult-centered perspectives on interactions with children and more "modern or progressive" child-centered perspectives (Schaefer & Edgerton, 1985). A higher score indicates that the individual holds a more adult-centered view (e.g. Children must be carefully trained early in life or their natural impulses make them unmanageable). The internal consistency for this study was 0.78.

Classroom quality. Beyond teacher report, observations of the classroom (from videotapes) were conducted prior to participation in the course or the consultancy. Each video was coded using the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre, 2008) and included the Literacy Focus dimension. The CLASS has 10 dimensions which create three domains of classroom process quality: Emotional Support, Classroom Organization, and Instructional Support. Given that the purpose was to include a proxy for intentional teaching, and not on the contribution of a particular domain, the 10 dimensions were averaged for the following analyses. Finally, given that the intervention also focused on promoting child language and literacy, the additional dimension of Literacy Focus was included as a component of classroom process.

Responsiveness to the Intervention (dependent variables)

Responsiveness to course. Responsiveness was defined by four indicators collected after completion of the course. First, course instructors noted teacher attendance, and a variable capturing the percent of courses that the teacher attended was created. Second, instructors rated teacher engagement during the course on a 5 point scale (higher scores indicates more observed engagement). Third, teachers were surveyed about their satisfaction with the course following completion. Participants responded to items such as: "What I learned in this course was helpful to my development as a teacher." Finally, a composite of time the teacher spent on the website was also created as the majority of the homework assignments in the course were web-based.

Responsiveness to consultancy. Similar to the course, the consultancy also measured four variables representing teacher responsiveness to the intervention. First, the number of cycles that the consultant and teacher completed during the school year (described above) was used as a proxy for attendance. Second, time that the teacher spent responding to prompts and viewing videos as a part of the cycle represented teacher involvement in activities related to the consultancy. Third, at the end of the consultancy, consultants reported on their perceptions of a

teacher's engagement in consultancy and the relationship with the consultant. Items were rated on a response scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Finally, teacher's completed a three-item questionnaire rating the degree to which they agreed with the following statements: (1) Consultancy was easy to participate in, (2) consultancy helped interact with children, and (3) consultancy was worth the time. A mean of the three items was created for analyses to represent teacher satisfaction.

Findings / Results:

Full information maximum likelihood in Mplus 6.0 (Muthén & Muthén) was used in all models to handle missing data. Results are presented separately for the course and consultancy.

Classroom and Teacher Characteristics Influence Responsiveness to the Course

Regression models were executed separately for each outcome variable (i.e., teacher satisfaction with course, teacher engagement in course, time spent on web completing homework, and teacher attendance in the course). Table 3 illustrates the results from the regression models. Results indicate that teachers with higher adult-centered beliefs about children and teachers with a literacy rich classroom environment were less satisfied with the course (R^2 = 0.16). Similarly, teachers with higher levels of traditional beliefs about children were less engaged in the course as reported by their instructors, and Hispanic and African American Teachers were less engaged compared to Caucasian teachers (R^2 = 0.28). On the other hand, Caucasian teachers spent less time on the web completing homework compared to African American and Hispanic teachers. Moreover, teachers with higher education levels spent more time on the web. Classroom characteristics failed to influence teacher time on the web (R^2 = 0.17). However, teachers whose classrooms reflected a rich literacy environment attended fewer course sessions. Additionally, teachers who reported higher levels of anger prior to the course participated in fewer course sessions; decreased involvement was also evident for Hispanic teachers (R^2 = 0.19). [Insert Table 3]

Classroom and Teacher Characteristics Influence Responsiveness to Consultancy

Parallel analyses were executed to predict differences in teacher responsiveness to the consultancy (i.e., teacher engagement in consultancy, teacher satisfaction with consultancy, time spent on web responding to prompts, and number of cycles teachers completed). Table 4 provides standardized coefficients for each model. Teachers who reported higher levels of anxiety were less engaged with their consultants, but teachers with literacy rich classroom environments prior to the consultancy were more engaged. This model predicted 17% of the variance in teacher engagement. Satisfaction with the consultancy was predicted by teacher anxiety; teachers with higher anxiety prior to the consultancy were less satisfied (R^2 = 0.09). Teacher anxiety also predicted diminished cycles with their consultant. Additionally, teachers with lower levels of education as well as African American and Hispanic teachers also completed fewer cycles (R^2 = 0.28). Finally, teachers with more traditional, adult-centered beliefs about children spent less time responding to prompts, on average (R^2 = .08).

Conclusions:

Overall, higher authoritarian beliefs about children limited teacher responsiveness to the course while anxiety prohibited teachers from fully benefiting from the consultancy. Other teacher characteristics (e.g., education, ethnicity) also impacted responsiveness to both intervention settings. Further, participation in the course and consultancy was differentially impacted for teachers' with literacy-rich classrooms. These findings have implications for promoting participation in varying intervention settings and shed light on identifying individuals for which more resources for participation may be allocated.

Appendices

Appendix A. References

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Appendix B. Tables and Figures

Table 1. Descriptives for all variables

Course			
Teacher Demographics	**%**		
Female	96%		
African American	43%		
Caucasian	31%		
Latino	17%		
Other ethnicity/race	9%		
Teacher has an AA or less	42%		
Teacher has a BA	44%		
Teacher has more than BA	13%		
More than 10 years of teaching experience	40%		
Teacher and Classroom Characteristics	***M***	***SD***	**Range**
Engagement in course	4.25	.79	1.00-5.00
Satisfaction with course	4.50	.38	3.31-5.00
Attendance (% classes attended)	85%	--	0%-100%
Time spent on the website (homework)	5.98	3.05	.08-17.11
Anger (pre-course)	.38	.41	0.00-2.00
Anxiety (pre-course)	.79	.45	0.00-2.00
Authoritarian beliefs about children (pre-course)	2.56	.62	1.31-4.06
Work Stress (pre-course)	1.86	.55	2.82-6.15
Teaching efficacy (pre-course)	7.41	1.00	1.00-5.00
Classroom literacy environment (pre-course)	2.05	.71	1.00-3.88
Classroom quality (pre-course)	4.50	.55	2.82-6.15

Consultancy			
Teacher Demographics	**%**		
Female	94%		
African American	47%		
Caucasian	31%		
Latino	16%		
Other ethnicity/race	6%		
Teacher has an AA or less	78%		
Teacher has a BA	15%		
Teacher has more than BA	7%		
More than 10 years of teaching experience	44%		
Teacher and Classroom Characteristics	***M***	***SD***	**Range**
Consultant rating of teacher engagement	3.02	.27	2.18-3.65
Teacher rated satisfaction with consultancy	3.77	.40	2.00-4.00
Number of cycles completed	10.12	4.16	1.00-21.00
Time teacher spent responding to prompts	25.94	11.69	8.33-65.00
Anger (pre-consultancy)	.30	.36	0-2.00
Anxiety (pre-consultancy)	.77	.44	0-2.10
Authoritarian beliefs about children (pre-consultancy)	2.52	.59	1.19-4.06
Work Stress (pre-consultancy)	1.70	.42	1.00-2.88
Teaching efficacy (pre-consultancy)	7.43	1.06	4.25-9.00
Classroom literacy environment (pre-consultancy)	2.27	.95	1.00-5.50
Classroom quality (pre-consultancy)	4.57	.45	3.33-5.60

Table 2. Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
Consultancy																				
1. Time spent responding to prompts	--																			
2. Number of cycles teacher completed	.06	--																		
3. Teacher engagement	-.08	.26	--																	
4. Teacher satisfaction	.09	.43	.04	--																
Teacher Demographics																				
5. Years of education					--	-.13	-.01	-.13	-.05	-.05	-.10	-.01	.12	-.27	.20	.26	-.05	.01	.16	.16
6. Years of experience	.07	-.07	.02	.02	-.11	--	.13	-.17	.04	.07	-.01	-.18	-.06	.03	-.09	-.15	.22	.02	.01	-.10
7. African American	-.09	-.07	-.04	-.03	.05	-.01	--	--	--	-.04	-.05	-.20	-.08	.25	.07	-.07	.04	-.04	-.21	-.12
8. Hispanic	.08	-.19	.04	-.06	-.14	-.03	--	--	--	.09	.13	.02	.08	.11	-.09	.01	.06	-.17	-.14	.06
9. Other Race	.05	-.07	.03	.06	.04	-.04	--	--	--	.05	-.01	.02	.14	.00	-.08	-.04	.01	-.05	-.06	.02
Teacher and classroom characteristics, pre-intervention																				
10. Classroom Literacy environment	.04	.15	-.10	.28	.03	-.01	.15	-.13	.05	--	.09	.10	-.13	.18	-.09	-.05	-.13	-.24	-.14	-.28
11. Classroom process quality	-.01	.12	-.10	.23	.13	.04	.15	.08	-.04	.28	--	.26	-.03	.21	-.14	-.08	.02	.05	.04	.03
12. Teacher work stress	.03	-.08	.04	-.03	-.11	-.01	-.15	.04	.09	-.14	-.14	--	-.22	-.10	.32	.32	.08	.09	.09	.01
13. Teaching efficacy	-.08	.11	.14	.11	.04	-.01	-.01	-.09	.10	.17	.15	-.22	--	-.05	-.15	-.17	-.01	.13	.11	.15
14. Authoritarian beliefs about children	-.17	-.20	.09	-.12	-.27	-.04	.16	.22	.10	.00	.05	.03	-.01	--	-.06	-.03	-.09	-.17	-.42	-.24
15. Teacher anger	-.08	-.11	-.02	.01	.08	-.12	-.01	.01	-.11	-.15	-.05	.20	-.15	-.04	--	.55	-.03	-.13	-.01	-.04
16. Teacher anxiety	-.03	-.24	-.27	-.18	.14	-.12	.02	.10	-.13	-.11	-.01	.13	-.19	.08	.38	--	.00	-.05	-.09	.01
Course																				
17. Time spent on website																	--	.48	.35	.30
18. Teacher attendance at course																		--	.69	.41
19. Engagement																			--	.46
20. Teacher satisfaction																				--`

***Bottom of correlation table lists coefficients for consultancy teachers; Top of correlation table lists coefficients for course teachers**

Table 3. Models Predicting Teacher Responsiveness Within a Course (n = 167)

	Attendance		Engagement		Satisfaction		Time on website	
	β	(SE)	β	(SE)	β	(SE)	β	(SE)
Teacher Demographics								
Years of education	0.07	0.09	0.09	0.08	0.14	0.09	-0.18	0.09
Years of experience	0.05	0.08	0.06	0.08	-0.04	0.09	0.30**	0.08
African American	-0.09	0.10	-0.53**	0.18	0.01	0.21	0.40*	0.20
Hispanic	-0.21*	0.09	-0.56*	0.18	0.32	0.26	-0.72**	0.24
Other Race	-0.12	0.09	-0.67 *	0.28	0.29	0.32	0.50	0.31
Teacher and classroom characteristics, pre-course								
Teaching Efficacy	0.13	0.08	0.03	0.08	0.02	0.09	-0.13	0.09
Authoritarian Beliefs about children	-.08	0.09	-0.32**	0.08	-0.19*	0.10	-0.07	0.09
Anger	-.22*	0.10	0.07	0.08	-0.06	0.11	-0.05	0.10
Anxiety	0.02	0.11	-0.16	0.10	0.00	0.11	0.03	0.10
Work Stress	0.18	0.09	0.06	0.09	0.00	0.10	0.15	0.09
Classroom Literacy environment	-0.25**	0.10	0.00	0.10	-0.26*	0.11	-0.18	0.10
Classroom process quality	0.11	.10	0.17	0.10	0.13	0.11	0.01	0.10

*p < .05; **p < .01

Table 4. Models Predicting Teacher Responsiveness Within Consultancy (n = 193)

	Number of cycles completed		Engagement		Satisfaction		Time spent responding to prompts	
	β	(SE)	β	(SE)	β	(SE)	β	(SE)
Teacher Demographics								
Years of education	0.35**	0.07	0.17	0.09	-0.02	0.10	-0.07	0.09
Years of experience	-0.8	0.07	0.02	0.08	0.00	0.09	0.05	0.08
African American	-0.21*	0.09	-0.07	0.10	0.06	0.11	0.05	0.10
Hispanic	-0.21*	0.09	0.02	0.10	0.11	0.11	0.17	0.10
Other Race	-0.05	0.08	0.04	0.09	0.03	0.10	0.11	0.09
Teacher and classroom characteristics, pre-consultancy								
Teaching efficacy	-0.01	0.08	0.03	0.08	0.09	0.11	-0.07	0.08
Authoritarian Beliefs about children	-0.02	0.09	-0.07	0.09	0.07	0.11	-0.24*	0.10
Anger	-0.04	0.08	0.11	0.09	0.07	0.10	-0.07	0.09
Anxiety	-0.23**	0.09	-0.20*	0.09	-0.24*	0.11	0.01	0.10
Work stress	0.00	0.09	0.03	0.10	0.05	0.11	0.00	0.10
Classroom Literacy environment	0.10	0.11	0.22*	0.10	-0.09	0.11	0.04	0.13
Classroom process quality	0.12	0.11	0.14	0.10	-0.10	0.11	-0.04	0.12

*p < .05; **p < .01